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Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary

Application No.

10/628,151

Applicant(s)

KATZER, ROBIN DALE

Examiner

Brent S. Stace

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2161

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 28 August 2007.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-29 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-29 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 28 July 2003 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
 - ☐ Certified copies of the priority documents have been received in Application No. _____.
 - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08) Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Remarks

1. This communication is responsive to the amendment filed July 30th, 2007. Claims 1-20 and 22-29 are pending. In the amendment filed July 30th, 2007, Claims 1, 14, 20, and 24 are amended, Claim 21 is canceled, and Claims 1, 14, 20, and 24 are independent Claims. The examiner acknowledges that no new matter was introduced and the claims are supported by the specification.

Continued Examination Under 37 CFR 1.114

2. A request for continued examination under 37 CFR 1.114, including the fee set forth in 37 CFR 1.17(e), was filed in this application after final rejection. Since this application is eligible for continued examination under 37 CFR 1.114, and the fee set forth in 37 CFR 1.17(e) has been timely paid, the finality of the previous Office action has been withdrawn pursuant to 37 CFR 1.114. Applicant's submission filed on 7/30/07 has been entered.

Response to Arguments

3. Applicant's arguments filed July 30th, 2007 with respect to Claims 1-20 and 22-29 have been fully considered but they are not persuasive.
4. With respect to the applicant's argument with respect to Claims 1-29 for the prior art(s) allegedly not teaching "allowing the application that is utilizing the data to

determine how the data will be cached," the examiner respectfully disagrees. This argument does not appear to be specifically claimed subject matter. However, a response to this argument appears to be met in the below responses.

5. With respect to the applicant's argument with respect to Claims 1-20 and 22-29 for the prior art(s) allegedly not teaching "allowing applications to define rules for cached data," the examiner respectfully disagrees. TimesTen, p. 591, second bullet under section 4.2 with TimesTen, p. 591, section 4.3 was used to reject the associated limitations. TimesTen, p. 591, second bullet under section 4.2 specifically teaches "In addition, TimesTen provides applications with a number of cache-aging options. An application may set up different durations for different cache groups as well as for different cache instances. Furthermore, the application may specify that certain cache groups should never be aged out." This is an application define rules for cached data (specifically, when the cache data should expire/be aged out). Allowing an application to determine how long data is to be cached also appears to be allowing the application that is utilizing the data to determine how the data will be cached (the argument above).

6. With respect to the applicant's argument with respect to Claims 1-20 and 22-29 for the prior art(s) allegedly not teaching "applying the application-specific cache management rules to the cache data," the examiner respectfully disagrees. The applicant further discusses how allegedly TimesTen refresh, full refresh or incremental refresh are rules that do not define how data is to be cached, only when data is going to be retrieved. Aging out cache data (as above) and determining how fresh the cache data is in the cache appears to be applying rules to the cached data. These rule relate

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to if the data should be stored, and how recently (and potentially accurate) the cached data is. The RS cache of Coram is the engine monitoring and applying the rules since the RS cache or Coram can do the functions of TimesTen's cache (e.g. maintaining a desired level of freshness, [Coram, paragraph [0047]] and invalidating cache entries after a period of time [Coram, paragraph [0050]]). Additionally the application of these rules does not involve the application, the in-memory database server/system, or a back office database since Coram's RS cache is separate from TimesTen and since the phrase "or" in the claim implies that only one of the three options in the list does not need involvement in order for the claimed limitations be to met.

7. The other claims argued merely because of a dependency on a previously argued claim(s) in the arguments presented to the examiner, filed July 30th, 2007, are moot in view of the examiner's interpretation of the claims and art and are still considered rejected based on their respective rejections from a prior Office action (recited again below).

Response to Amendment

Specification

8. The lengthy specification has not been checked to the extent necessary to determine the presence of all possible minor errors. Applicant's cooperation is requested in correcting any errors of which applicant may become aware in the specification.

Claim Objections

9. Claims 1-19 and 27-29 are objected to because of the following informality:
- a. Claim 1, line 1 recites "A application specific cache management system." This appears to be a grammatical error. An appropriate amendment may be "An application specific cache management system." This objection propagates downward through dependent Claims 2-13.
 - b. Claim 14 ends with two periods. This objection propagates downward through dependent Claims 15-19.
 - c. Claim 27, lines 1 recites "Claim 24,wherein." It appears that there is a typographical error in that a space was omitted between the comma and the "wherein." This objection propagates downward through dependent Claims 28 and 29.
- Appropriate correction is required.

Drawings

10. The new drawings submitted 7/30/07 are objected to because Fig. 6 and Fig. 7 are missing a dotted line from the original drawings filed. In Fig. 6, there is a missing dotted line goes from the rules engine in computer system 1 to computer system 4. In Fig. 7, there is a missing dotted line goes from the rules engine in computer system 1 to computer system 3. These missing dotted lines were in the originally submitted drawings. Corrected drawing sheets in compliance with 37 CFR 1.121(d) are required in reply to the Office action to avoid abandonment of the application. Any amended

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replacement drawing sheet should include all of the figures appearing on the immediate prior version of the sheet, even if only one figure is being amended. The figure or figure number of an amended drawing should not be labeled as "amended." If a drawing figure is to be canceled, the appropriate figure must be removed from the replacement sheet, and where necessary, the remaining figures must be renumbered and appropriate changes made to the brief description of the several views of the drawings for consistency. Additional replacement sheets may be necessary to show the renumbering of the remaining figures. Each drawing sheet submitted after the filing date of an application must be labeled in the top margin as either "Replacement Sheet" or "New Sheet" pursuant to 37 CFR 1.121(d). If the changes are not accepted by the examiner, the applicant will be notified and informed of any required corrective action in the next Office action. The objection to the drawings will not be held in abeyance.

INFORMATION ON HOW TO EFFECT DRAWING CHANGES

Replacement Drawing Sheets

Drawing changes must be made by presenting replacement sheets which incorporate the desired changes and which comply with 37 CFR 1.84. An explanation of the changes made must be presented either in the drawing amendments section, or remarks, section of the amendment paper. Each drawing sheet submitted after the filing date of an application must be labeled in the top margin as either "Replacement Sheet" or "New Sheet" pursuant to 37 CFR 1.121(d). A replacement sheet must include all of the figures appearing on the immediate prior version of the sheet, even if only one figure is being amended. The figure or figure number of the amended drawing(s) must not be labeled as "amended." If the changes to the drawing figure(s) are not accepted by the examiner, applicant will be notified of any required corrective action in the next Office action. No further drawing submission will be required, unless applicant is notified.

Identifying indicia, if provided, should include the title of the invention, inventor's name, and application number, or docket number (if any) if an application number has not

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been assigned to the application. If this information is provided, it must be placed on the front of each sheet and within the top margin.

Annotated Drawing Sheets

A marked-up copy of any amended drawing figure, including annotations indicating the changes made, may be submitted or required by the examiner. The annotated drawing sheet(s) must be clearly labeled as "Annotated Sheet" and must be presented in the amendment or remarks section that explains the change(s) to the drawings.

Timing of Corrections

Applicant is required to submit acceptable corrected drawings within the time period set in the Office action. See 37 CFR 1.85(a). Failure to take corrective action within the set period will result in ABANDONMENT of the application.

If corrected drawings are required in a Notice of Allowability (PTOL-37), the new drawings MUST be filed within the THREE MONTH shortened statutory period set for reply in the "Notice of Allowability." Extensions of time may NOT be obtained under the provisions of 37 CFR 1.136 for filing the corrected drawings after the mailing of a Notice of Allowability.

Claim Rejections - 35 USC § 112

11. The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

12. Claims 1-19 and 24-29 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

13. Claim 1 recites the limitation "the in-memory database server" in lines 14-15.

There is insufficient antecedent basis for this limitation in the claim. This rejection propagates downward through dependent Claims 2-13. Independent Claims 14 and 24

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share this similar rejection and their rejections propagate downward through dependent Claims 15-19 and 25-29.

14. Claims 1 and 14 recite “wherein the engine monitors the in-memory database system and applies the rule to the application specific cached data without the involvement of the...in-memory database [system]” in lines 13-15 (in Claim 1). This limitation can have multiple interpretations. In order to clarify the claim (as it is in Claims 20 and 24) the examiner proposes the following amendment that may overcome this rejection: “wherein the engine monitors the in-memory database system and applies the rule to the application specific cached data, the application of the rule to the application specific cached data occurs without the involvement of the...in-memory database system.” This clarifies that the application the application of the rule to the application specific cached data occurs without the involvement of the...in-memory database system (as it is in Claims 20 and 24) instead of potentially the monitoring of the in-memory database system occurs without the involvement of the...in-memory database system (which doesn’t appear to make sense).

15. Claim 1 recites “an in-memory database system for managing application specific cached data...wherein the engine...applies the rule to the application specific cached data without involvement of the in-memory database system.” These limitations appear to be contradictory. The application of the rule by the engine appears to require involvement of the IMDBS (in-memory database system) since the application of a rule appears to be managing the application specific cached data (the managing done by the IMDBS as in first limitation).

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16. Claim 20 recites the limitation "the rule to create application cache data" in lines 10-11. There is insufficient antecedent basis for this limitation in the claim.

Claim Rejections - 35 USC § 103

17. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

18. Claims 1-20 and 22-26 are rejected under 35 U.S.C. 103(a) as being unpatentable over "Mid-Tier Caching: The TimesTen Approach" (TimesTen) in view of U.S. Patent Application Publication No. 2002/0107835 (Coram et al.).

For **Claim 1**, TimesTen teaches: "A application specific cache management system stored on a computer readable medium, [TimesTen, p. 588, last paragraph] comprising:

- an in-memory database system for managing application specific cached data; [TimesTen, p. 589, paragraphs above and below section header 3]
- an application utilizing application specific data and having a rule related to caching the application specific data, wherein the application defines the rules for the application specific cache; [TimesTen, p. 591, second bullet under section 4.2 with TimesTen, p. 591, section 4.3]

- a wrapper to receive the application specific data from the application and provide at least a portion of the application specific data and a component of the rule to the in-memory database system, wherein the at least the portion of application specific data is the application specific cache data" [TimesTen, p. 589, paragraph under section header 3 with TimesTen, p. 590; paragraph under section header 4 with TimesTen, p. 591, second bullet under section 4.2 with TimesTen, p. 591-592, section 4.3].

TimesTen discloses the above limitations but does not expressly teach:

- "...an engine operable to monitor the in-memory database system and apply the rule to the application specific cached data;
- wherein the engine monitors the in-memory database system and applies the rule to the application specific cached data without the involvement of the application or the in-memory database server, or a back office database."

With respect to Claim 1, an analogous art, Coram, teaches:

- "...an engine operable to monitor the in-memory database system and apply the rule to the application specific cached data; [Coram, paragraphs [0045]-[0047] with TimesTen, p. 591-592, section 4.3].
- wherein the engine monitors the in-memory database system and applies the rule to the application specific cached data [Coram, paragraphs [0045]-[0047] with TimesTen, p. 591-592, section 4.3] without the involvement of the application or the in-memory database server, or a back office database" [Coram,

paragraphs [0027], [0030], [0033], [0034], [0036], and [0047] with TimesTen, p. 591, second bullet under section 4.2].

It would have been obvious to one of ordinary skill in the art at the time of invention having the teachings of Coram and TimesTen before him/her to combine Coram with TimesTen because both inventions are directed towards caching data.

Coram's invention would have been expected to successfully work well with TimesTen's invention because both inventions use caches for databases. TimesTen discloses an in-memory database data manager with mid-tier caching comprising maintaining rules for cache management. However, TimesTen does not expressly disclose the engine applying rules without involvement of the application or the in-memory database system. Coram discloses a system and method for adaptive result set caching comprising a cache as a driver separate from an application and database handling caching techniques/rules.

It would have been obvious to one of ordinary skill in the art at the time of invention having the teachings of Coram and TimesTen before him/her to take the caching techniques and system structure(s) from Coram and install it into the invention of TimesTen, thereby offering the obvious advantage of providing rapid access to subset of data (Coram, paragraph [0008]).

Claim 2 can be mapped to TimesTen (as modified by Coram) as follows: "The cache management system of Claim 1, wherein the component of the rule is further defined as a first component and a second component of the rule" [TimesTen, p. 591-592, section 4.3 with/or Coram, paragraphs [0054] and [0056]].

Claim 3 can be mapped to TimesTen (as modified by Coram) as follows: "The cache management system of Claim 1, wherein the rule is further defined as instructions for cache management of the data" [TimesTen, p. 591-592, section 4.3 with/or Coram, paragraphs [0054] and [0056]].

Claim 4 can be mapped to TimesTen (as modified by Coram) as follows: "The cache management system of Claim 1, wherein the data is application data and wherein the rule for cache management of the data is related to the application" [TimesTen, p. 591-592, section 4.3 with TimesTen, p. 590, paragraph under section header 4 with/or Coram, paragraphs [0054] and [0056]].

Claim 5 can be mapped to TimesTen (as modified by Coram) as follows: "The cache management system of Claim 1, wherein the wrapper receives at least a portion of the data from the application and the wrapper provides a part of the at least a portion of the data to the in-memory database system" [TimesTen, p. 589, paragraph under section header 3 with TimesTen, p. 590, paragraph under section header 4 with TimesTen, p. 591-592, section 4.3].

Claim 6 can be mapped to TimesTen (as modified by Coram) as follows: "The cache management system of Claim 1, further comprising a plug-in operable to communicate with the in-memory database system to receive the data and the component of the rule from the wrapper and communicate the data and information related to the rule to the in-memory database system" [TimesTen, page 589, paragraph below section header 3, with TimesTen, page 590, paragraph under section header 4.1,

TimesTen, page 591, paragraph above section header 4.3 with/or Coram, paragraphs [0027], [0030], [0033], [0034], [0036], and [0047]].

Claim 7 can be mapped to TimesTen (as modified by Coram) as follows: "The cache management system of Claim 1, wherein the engine is operable to obtain the component of the rule from the in-memory database and to obtain the instruction for cache management of the data related to the component of the rule and further operable to execute the instructions to apply the rule to the data" [TimesTen, p. 591-592, section 4.3 with/or Coram, paragraphs [0045]-[0047]].

Claim 8 can be mapped to TimesTen (as modified by Coram) as follows: "The cache management system of Claim 1, wherein the rule is defined as an asynchronous rule" [TimesTen, p. 591-592, section 4.3 with/or Coram, paragraphs [0047]-[0052]].

Claim 9 can be mapped to TimesTen (as modified by Coram) as follows: "The cache management system of Claim 1, wherein the rule is defined as a synchronous rule" [TimesTen, p. 591-592, section 4.3 with/or Coram, paragraphs [0047]-[0052]].

Claim 10 can be mapped to TimesTen (as modified by Coram) as follows: "The cache management system of Claim 1, wherein the rule includes a refresh data instruction whereby the engine is operable to obtain current data from a database" [TimesTen, p. 591-592, section 4.3 with/or Coram, paragraph [0054]].

Claim 11 can be mapped to TimesTen (as modified by Coram) as follows: "The cache management system of Claim 1, wherein the rule includes a tenure data instruction whereby the engine is operable to release the data after a time period" [TimesTen, p. 591, section 4.2 with/or Coram, paragraph [0050]].

Claim 12 can be mapped to TimesTen (as modified by Coram) as follows: "The cache management system of Claim 1, wherein the rule includes a persist data instruction whereby the engine is operable to release the data after a time period [TimesTen, p. 591, section 4.2] unless the data is requested before the expiration of the time period" [Coram, paragraph [0050] or TimesTen, p. 591, section 4.2].

For the TimesTen citation, it would have been obvious to one of ordinary skill in the art at the time of invention to combine the two embodiments of TimesTen (as modified by Coram) because both embodiments are directed towards caching data.

TimesTen (as modified by Coram) discloses an in-memory database data manager with mid-tier caching comprising caching out data based on duration time in the cache, however TimesTen (as modified by Coram) does not expressly disclose in the same embodiment LRU caching. TimesTen (as modified by Coram) discloses an in-memory database data manager with mid-tier caching comprising caching out data based on duration time in the cache comprising an LRU cache replacement scheme based on last time of access.

It would have been obvious to one of ordinary skill in the art at the time of invention to take the LRU cache replacement scheme from one embodiment of TimesTen (as modified by Coram) and install it into the cache aging duration replacement scheme of TimesTen (as modified by Coram), thereby offering the obvious advantage of not inappropriately replacing or caching-out data from the cache when it may be used again later or shortly later, thereby increasing the speed of the system by relying on cached data.

Claim 13 can be mapped to TimesTen (as modified by Coram) as follows: "The cache management system of Claim 1, wherein the component of the rule is further defined as a rule type" [TimesTen, p. 591-592, section 4.2-4.3 with/or Coram, paragraph [0054]].

For **Claim 14**, TimesTen teaches: "A system stored on a computer readable medium for managing application specific cached data, [TimesTen, p. 588, last paragraph] comprising:

- a first application server; [TimesTen, p. 589, first paragraph and figure under section header 2]
- an application operable on the first application server, [TimesTen, p. 588, first paragraph] the application utilizing data and having a rule related to an application specific cache management of the data, wherein the application defines the rules for the application specific cache; [TimesTen, p. 591, second bullet under section 4.2 with TimesTen, p. 591-592, section 4.3]
- a second application server; [TimesTen, p. 589, first paragraph and figure under section header 2]
- an in-memory database management system operable on the second application server to receive the data; [TimesTen, pgs. 589-590, second paragraph under section header 3]
- a wrapper in communication with the application to receive a component of the rule from the application and provide the component of the rule to the in-memory database system..." [TimesTen, p. 589, paragraph under section header 3 with

TimesTen, p. 590, paragraph under section header 4 with TimesTen, pgs. 591-592, section 4.3].

TimesTen discloses the above limitations but does not expressly teach:

- "...an engine operable to monitor the in-memory database system and apply the rule to the application specific cached data;
- wherein the engine monitors the in-memory database system and applies the rule to the application specific cached data without the involvement of the application or the in-memory database management server, or a back office database.."

With respect to Claim 14, an analogous art, Coram, teaches:

- "...an engine operable to monitor the in-memory database system and apply the rule to the application specific cached data; [Coram, paragraphs [0045]-[0047] with TimesTen, p. 591-592, section 4.3]
- wherein the engine monitors the in-memory database system and applies the rule to the application specific cached data [Coram, paragraphs [0045]-[0047] with TimesTen, p. 591-592, section 4.3] without the involvement of the application or the in-memory database management server, or a back office database" [Coram, paragraphs [0027], [0030], [0033], [0034], [0036], and [0047] with TimesTen, p. 591, second bullet under section 4.2].

It would have been obvious to one of ordinary skill in the art at the time of invention having the teachings of Coram and TimesTen before him/her to combine Coram with TimesTen because both inventions are directed towards caching data.

Coram's invention would have been expected to successfully work well with TimesTen's invention because both inventions use caches for databases. TimesTen discloses an in-memory database data manager with mid-tier caching comprising maintaining rules for cache management. However, TimesTen does not expressly disclose the engine applying rules without involvement of the application or the in-memory database system. Coram discloses a system and method for adaptive result set caching comprising a cache as a driver separate from an application and database handling caching techniques/rules.

It would have been obvious to one of ordinary skill in the art at the time of invention having the teachings of Coram and TimesTen before him/her to take the caching techniques and system structure(s) from Coram and install it into the invention of TimesTen, thereby offering the obvious advantage of providing rapid access to subset of data (Coram, paragraph [0008]).

Claim 15 can be mapped to TimesTen (as modified by Coram) as follows: "The system of Claim 14, wherein the engine is operable on the first application server" [TimesTen, p. 589, section 2 with TimesTen, pgs. 589-590, second paragraph under section header 3 with/or Coram, paragraphs [0074]-[0078]].

Claim 16 can be mapped to TimesTen (as modified by Coram) as follows: "The system of Claim 14, wherein the wrapper is operable on the first application server" [TimesTen, p. 589, section 2 with TimesTen, pgs. 589-590, second paragraph under section header 3 with/or Coram, paragraphs [0074]-[0078]].

Claim 17 can be mapped to TimesTen (as modified by Coram) as follows: "The system of Claim 14, wherein the wrapper and the engine are operable on the first application server" [TimesTen, p. 589, section 2 with TimesTen, pgs. 589-590, second paragraph under section header 3 with/or Coram, paragraphs [0074]-[0078]].

Claim 18 can be mapped to TimesTen (as modified by Coram) as follows: "The system of Claim 14, wherein the engine is operable on the second application server" [TimesTen, pgs. 589-590, second paragraph under section header 3 with TimesTen, pgs. 591-592, section 4.3 with/or Coram, paragraphs [0074]-[0078]].

Claim 19 can be mapped to TimesTen (as modified by Coram) as follows: "The system of Claim 14, further comprising a third application server and wherein the engine is operable on the third application server" [TimesTen, p. 589, first paragraph and figure under section header 2 with TimesTen, pgs. 589-590, second paragraph under section header 3 with TimesTen, pgs. 591-592, section 4.3 with/or Coram, paragraphs [0074]-[0078]].

For **Claim 20**, TimesTen teaches: A method of managing cached data stored on a computer readable medium, [TimesTen, p. 588, last paragraph] comprising:

- obtaining application data and a component of a rule related to the data from an application, wherein the application defines the rule for an application specific cache; [TimesTen, p. 591, second bullet under section 4.2 with TimesTen, p. 591, section 4.3]

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- wrapping the data and the component of the rule; [TimesTen, p. 589, paragraph under section header 3 with TimesTen, p. 590, paragraph under section header 4 with TimesTen, p. 591-592, section 4.3]
- providing the wrapped application data and component of the rule to an in-memory database server; [TimesTen, p. 589, paragraph under section header 3 with TimesTen, p. 590, paragraph under section header 4 with TimesTen, p. 591-592, section 4.3]
- monitoring the in-memory database server; [TimesTen, p. 591-592, section 4.3] and
- applying the rule to the wrapped application data based on the rule component; [TimesTen, p. 591-592, section 4.3] and
- caching at least a portion of the wrapped application data according to the rule to create application cache data; [TimesTen, p. 591, second bullet under section 4.2]
- wherein the application of the rule to the application data occurs" [TimesTen, p. 591-592, section 4.3]

TimesTen discloses the above limitations but does not expressly teach:

- "...without the involvement of the application, the in-memory database server, or a back office database."

With respect to Claim 20, an analogous art, Coram, teaches:

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- "...without the involvement of the application, the in-memory database server, or a back office database" [Coram, paragraphs [0027], [0030], [0033], [0034], [0036], and [0047] with TimesTen, p. 591, second bullet under section 4.2].

It would have been obvious to one of ordinary skill in the art at the time of invention having the teachings of Coram and TimesTen before him/her to combine Coram with TimesTen because both inventions are directed towards caching data.

Coram's invention would have been expected to successfully work well with TimesTen's invention because both inventions use caches for databases. TimesTen discloses an in-memory database data manager with mid-tier caching comprising maintaining rules for cache management. However, TimesTen does not expressly disclose the engine applying rules without involvement of the application or the in-memory database system. Coram discloses a system and method for adaptive result set caching comprising a cache as a driver separate from an application and database handling caching techniques/rules.

It would have been obvious to one of ordinary skill in the art at the time of invention having the teachings of Coram and TimesTen before him/her to take the caching techniques and system structure(s) from Coram and install it into the invention of TimesTen, thereby offering the obvious advantage of providing rapid access to subset of data (Coram, paragraph [0008]).

Claim 22 can be mapped to TimesTen (as modified by Coram) as follows: "The method of Claim 20, wherein the rule is defined as an instruction related to a cache

management of the data" [TimesTen, p. 591-592, section 4.3 with TimesTen, p. 590, paragraph under section header 4 with/or Coram, paragraphs [0045]-[0047] and [0054]].

Claim 23 can be mapped to TimesTen (as modified by Coram) as follows: "The method of Claim 20, wherein the component of the rule is further defined as a rule type related to the instruction" [TimesTen, p. 591-592, section 4.2-4.3 with/or Coram, paragraphs [0045]-[0047] and [0054]].

For **Claim 24**, TimesTen teaches: A cache management system stored on a computer readable medium, [TimesTen, p. 588, last paragraph] comprising:

- an application utilizing data and having a rule related to caching the data, wherein the application defines the rules for the application specific cache; [TimesTen, p. 591, second bullet under section 4.2 with TimesTen, p. 591, section 4.3]
- an in-memory database management system to receive the data; [TimesTen, p. 589, paragraphs above and below section header 3 with TimesTen, pgs. 589-590, second paragraph under section header 3]
- a wrapper in communication with the application to receive at least a component of the rule..." [TimesTen, p. 589, paragraph under section header 3 with TimesTen, p. 590, paragraph under section header 4 with TimesTen, p. 591-592, section 4.3].

TimesTen discloses the above limitations but does not expressly teach:

- "...an engine operable to receive at least the component of the rule from the wrapper and apply the rule to cached data;

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- wherein the engine applies the rule to the cached data without the involvement of the application, the in-memory database management server, or a back office database."

With respect to Claim 24, an analogous art, Coram, teaches:

- "...an engine operable to receive at least the component of the rule from the wrapper and apply the rule to cached data; [Coram, paragraphs [0045]-[0047] with TimesTen, p. 591-592, section 4.3]
- wherein the engine applies the rule to the cached data [Coram, paragraphs [0045]-[0047] with TimesTen, p. 591-592, section 4.3] without the involvement of the application, the in-memory database management server, or a back office database" [Coram, paragraphs [0027], [0030], [0033], [0034], [0036], and [0047] with TimesTen, p. 591, second bullet under section 4.2].

It would have been obvious to one of ordinary skill in the art at the time of invention having the teachings of Coram and TimesTen before him/her to combine Coram with TimesTen because both inventions are directed towards caching data.

Coram's invention would have been expected to successfully work well with TimesTen's invention because both inventions use caches for databases. TimesTen discloses an in-memory database data manager with mid-tier caching comprising maintaining rules for cache management. However, TimesTen does not expressly disclose the engine applying rules without involvement of the application or the in-memory database system. Coram discloses a system and method for adaptive result

set caching comprising a cache as a driver separate from an application and database handling caching techniques/rules.

It would have been obvious to one of ordinary skill in the art at the time of invention having the teachings of Coram and TimesTen before him/her to take the caching techniques and system structure(s) from Coram and install it into the invention of TimesTen, thereby offering the obvious advantage of providing rapid access to subset of data (Coram, paragraph [0008]).

Claim 25 can be mapped to TimesTen (as modified by Coram) as follows: "The cache management system of Claim 24, wherein the data is a refresh data request" [TimesTen, p. 591, section 4.3 with/or Coram, paragraph [0054]].

Claim 26 can be mapped to TimesTen (as modified by Coram) as follows: "The cache management system of Claim 24, wherein the rule is an application specific cache data rule" [TimesTen, p. 591-592, section 4.2-4.3 with/or Coram, paragraphs [0046]-[0052]].

19. Claims 27-29 are rejected under 35 U.S.C. 103(a) as being unpatentable over "Mid-Tier Caching: The TimesTen Approach" (TimesTen) in view of U.S. Patent Application Publication No. 2002/0107835 (Coram et al.), further in view of U.S. Patent No. 6,901,383 (Ricketts et al.).

For **Claim 27**, TimesTen (as modified by Coram) teaches: "The cache management system of Claim 24, wherein the in-memory database management system further includes a storage portion for storing the data utilized by the application

[TimesTen, p. 591, paragraph under section header 4.3]... operable to maintain a rule event related to the rule for caching data, the rule event pointing to a location in the storage portion of the in-memory database where the data related thereto is stored"

[TimesTen, p. 591-592, section 4.2-4.3 with TimesTen, p. 591, paragraph above section header 4.2].

TimesTen (as modified by Coram) discloses the above limitations but does not expressly teach: "...and a table."

With respect to Claim 27, an analogous art, Ricketts, teaches: "...and a table" [Ricketts, col. 12, lines 46-59 with Fig. 37A].

It would have been obvious to one of ordinary skill in the art at the time of invention to combine Ricketts with TimesTen (as modified by Coram) because both inventions are directed towards databases.

Ricketts's invention would have been expected to successfully work well with TimesTen (as modified by Coram)'s invention because both inventions use databases. TimesTen (as modified by Coram) discloses a an in-memory database data manager with mid-tier caching comprising maintaining rules for cache management, however TimesTen (as modified by Coram) does not expressly disclose the use of a rules table for maintaining these rules. Ricketts discloses stock purchase indices comprising a table of filters (rules).

It would have been obvious to one of ordinary skill in the art at the time of invention to take the table from Ricketts and install it into the system of TimesTen (as modified by Coram), thereby offering the obvious advantage of TimesTen (as modified

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by Coram) using its own data structures (tables in memory) to access the rules for caching fast, thereby increasing the speed of the combined invention.

Claim 28 can be mapped to TimesTen (as modified by Coram and Ricketts) as follows: "The cache management system of Claim 27, wherein the wrapper is further operable to provide at least a portion of the data from the application and a component of the rule to the in-memory database" [TimesTen, p. 589, paragraph under section header 3 with TimesTen, p. 590, paragraph under section header 4 with TimesTen, p. 591-592, section 4.3].

Claim 29 can be mapped to TimesTen (as modified by Coram and Ricketts) as follows: "The cache management system of Claim 28, wherein the engine is further operable to poll the in-memory database and apply the rule related to the rule event to the data" [TimesTen, p. 591-592, section 4.2-4.3, with/or Coram, paragraphs [0046]-[0052], [0054], and [0056]].

Conclusion

20. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Brent S. Stace whose telephone number is 571-272-8372 and fax number is 571-273-8372. The examiner can normally be reached on M-F 9am-5:30pm EST.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Apu M. Mofiz can be reached on 571-272-4080. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

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